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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/661,078

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Amar K. Pati

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EXAMINER

CARTER, AARON W

ART UNIT

PAPER NUMBER

2624

MAIL DATE

DELIVERY MODE

04/23/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/661,078	Applicant(s) PATI, AMAR K.	
	Examiner AARON W. CARTER	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-54 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 10-12, 19-24, 28-30, 37-42 and 46-48 is/are rejected.
- 7) ☒ Claim(s) 7-9, 13-18, 25-27, 31-36, 43-45 and 49-54 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is responsive to papers filed on 10/15/07.

Response to Amendment

2. In response to applicant's amendment received on 10/15/07, all requested changes to the claims have been entered. Claims 37-54 have been added.

Response to Arguments

3. Applicant's arguments filed 10/15/07, with regards to claims 1, 19 and 37 have been fully considered but they are not persuasive.

Applicants argue that the prior art of Michael does not teach or fairly suggest a "prototype representing a class of elements".

The Examiner disagrees. Using the broadest reasonable interpretation of the claims limitations (*In re Morris*, 127 F.3d 1048 (Fed. Cir. 1997)) it can be said that the golden template image created from various acceptable images (column 9, lines 41-46) corresponds to a prototype representing a class of elements. Therefore the rejection of claims 1 and 19 are maintained and new claim 37 will be rejected in a similar manner.

4. Applicant's arguments filed 10/15/07, with regards to claims 4, 22 and 40 have been fully considered but they are not persuasive.

Applicants argue that the prior art of Michael does not teach or fairly suggest "assigning a score to each cluster based on the shape of the cluster".

The Examiner disagrees. Using the broadest reasonable interpretation of the claims limitations (*In re Morris*, 127 F.3d 1048 (Fed. Cir. 1997)) it can be said that the blob analysis of the error image, specifically the process of imposing defect criteria based on shape of a blob using equation 9a to assign a score to the blob or cluster (column 10, lines 28-34 and column 16, lines 15-32) corresponds to assigning a score to each cluster based on the shape of the cluster. Therefore the rejection of claims 4 and 22 are maintained and new claim 40 will be rejected in a similar manner.

5. Applicant's arguments, see Remarks, pages 16-18, filed 10/15/07, with respect to claims 13 and 31 have been fully considered and are persuasive. The 35 USC 103(a) rejections of claims 13 and 31 have been withdrawn.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-6, 10-12, 19-24, 28-30, 37-42 and 46-48 are rejected under 35 U.S.C. 102(b) as being anticipated by USPN 5,640,200 to Michael.

As to claim 1, Michael discloses a method for classifying elements of a digital image, the method comprising:

Receiving an element of the digital image and a prototype representing a class of elements (*column 9, lines 41-46, wherein in the test image corresponds to the element of the digital image and the golden template corresponds to the prototype representing various acceptable images which corresponds to a class of elements*);

Generating a difference image representing differences between the received element and the prototype and including a plurality of ON pixels, each ON pixel representing a local difference between the received element and the prototype (*column 10, lines 8-17, wherein the difference image contains pixels that differ between the test image and golden template and those pixels correspond to the ON pixels*), wherein the difference image includes one or more clusters of ON pixels, each cluster including one or more neighboring ON pixels (*column 10, lines 28-34, wherein the blobs or plurality of connected pixels corresponds to a cluster of ON pixels*);

Determining relative arrangements of ON pixels in the difference image (*column 10, lines 21-34, column 15, lines 22-28 and column 16, lines 15-32, wherein the location, area, perimeter orientation and inertia correspond to determining relative arrangements of ON pixels*);

Assigning one or more scores to the difference image using the determined relative arrangements of ON pixels in the difference image (*column 10, lines 21-34, column 15, lines 22-28 and column 16, lines 15-32, wherein based on the relative arrangements of ON pixels in the difference image the pixels are compared to threshold and assigned a value, see also equations 7, 8, 9a and 9b*); and

Art Unit: 2624

Based on the scores assigned to the difference image, determining whether the received element of the image belongs to the class represented by the prototype (*column 10, lines 21-34, column 15, lines 22-28 and column 16, lines 15-32, see also equations 7, 8, 9a and 9b, based on the assigned values for each pixel, or score, the test image is classified as either containing a defect or not and if it is not considered to contain a defect it is classified as belonging to the class represented by the golden template or prototype*).

As to claim 2, Michael discloses the method of claim 1, further comprising:

Identifying one or more of the clusters of ON pixels in the difference image (*column 10, lines 28-34 and column 16, lines 15-32, wherein the blobs or plurality of connected pixels corresponds to a cluster of ON pixels*).

As to claim 3, Michael discloses the method of claim 2, wherein:

Determining relative arrangements of ON pixels in the difference image includes, for each identified cluster, determining a relative arrangement of ON pixels in the cluster, the determined relative arrangements specifying a shape for the cluster (*column 10, lines 28-34 and column 16, lines 15-32*).

As to claim 4, Michael discloses the method of claim 3, wherein:

Assigning one or more scores to the difference image includes assigning a score to each cluster based on the shape of the cluster (*column 10, lines 28-34 and column 16, lines 15-32, see also equations 9a and 9b*).

As to claim 5, Michael discloses the method of claim 1, wherein:

Assigning one or more scores to the difference image includes assigning a score to each ON pixel in the difference image (*column 10, lines 21-27 and column 15, lines 22-28*).

As to claim 6, Michael discloses the method of claim 5, wherein:

Assigning a score to each ON pixel includes assigning a score to each ON pixel based on a number of other ON pixels in a predetermined neighborhood of the ON pixel (*column 15, lines 22-28 and column 16, lines 15-32*).

As to claim 10, Michael discloses the method of claim 1, wherein:

Generating a difference image includes generating a difference image that includes one or more OFF pixels, each OFF pixel representing lack of local difference between the received element and the prototype (*column 10, lines 8-17, wherein the difference image contains pixels that differ between the test image and golden template and those pixels correspond to the ON pixels, while pixels not included in the difference image correspond to OFF pixels*).

As to claim 11, Michael discloses the method of claim 1, wherein:

Receiving an element of the digital image includes receiving a bitmap image element including neighboring pixels of the same bit value (*column 9, lines 41-46, wherein in the test image corresponds to the element of the digital image*).

As to claim 12, Michael discloses the method of claim 11, wherein:

Receiving a prototype includes receiving a bitmap of the prototype (*column 9, lines 41-46, wherein the golden template corresponds to the bitmap of the prototype*).

As to claims 19-24, please refer to the rejections of claims 1-6 above, respectively.

As to claims 28-30, please refer to the rejections of claims 10-12 above, respectively.

As to claims 37-42, please refer to the rejections of claims 1-6 above, respectively.

As to claims 46-48, please refer to the rejections of claims 10-12 above, respectively.

Allowable Subject Matter

8. Claims 7-9, 13-18, 25-27, 31-36, 43-45 and 49-54 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to AARON W. CARTER whose telephone number is (571)272-7445. The examiner can normally be reached on 8am - 4:30 am (Mon. - Fri.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Werner can be reached on (571) 272-7401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Aaron W Carter/
Primary Examiner, Art Unit 2624